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REMARKS/ARGUMENTS

In the Non-Final Office Action of January 4, 2010 (the "Office Action"):

1. Claims 73-77 are rejected under 35 USC 101 as being directed to non-statutory subject matter;
2. Claims 67-96 are rejected under 35 USC 102(e) as being anticipated by Chen et al. (US Patent Publication No. 2004/0003278) ("Chen");
3. Claim 97 is rejected under 35 USC 102(b) as being anticipated by Sokolov et al. (US Patent Publication No. 2002/0194243) ("Sokolov");
4. Claims 98-100 are rejected under 35 USC 103(a) as being unpatentable over Sokolov in view of Lambert Martin et al. (US Patent Publication No. 2004/0039926) ("Lambert");
5. Claims 101-105 are rejected under 35 USC 103(a) as being unpatentable over Chen in view of Sokolov.

1. Rejection of Claims 73-77 under 35 USC 101

Claims 73-77 have been cancelled and therefore are no longer at issue in the present application.

2. Rejection of Claims 67-96 under 35 USC 102(e) in light of Chen

Claim 67 has been amended to claim a "method comprising: substituting an assignment of a variable in source code with a class template defining a plurality of functions of the variable, each of the plurality of functions indexed by a key value and associated with a series of operations resulting in the assignment of the variable in a manner obfuscating such assignment; and compiling the source code using a compiler to produce object code, wherein the compiler inserts in the object code the series of operations associated with one of the plurality of functions of the variable identified by a key value provided as a

parameter of the class template,” and such a method is believed to be neither taught nor suggested by Chen.

The use of a class template which defines a plurality of functions of the variable, wherein each of the plurality of functions is indexed by a key value, allows a programmer to easily specify the function that is to be used to obfuscate an assignment of the variable by substituting the assignment of the variable in the source code by the class template and specifying the associated key value as a parameter of the class template.

In contrast, the prior art of record doesn't provide such capability to the programmer. In Chen, the programmer specifies which variable is to be protected by specifying such variable in the variable declaration section of the program (§§0016; §§0030; and §§0047) and the compiler randomly selects an obfuscation function for each declared secure variable and inserts it into the source code (§§0016; §§0036; and §§0056). Thus, Chen's programmer cannot specify the function that is to be used to obfuscate an assignment (or other use) of the variable. The compiler randomly makes such choice.

Further, there appears to be no mechanism disclosed in Chen which allows the programmer to specify the obfuscation function that is to be used, nor even a suggestion of such a capability that is compatible with the way that the programmer specifies the variable to be secured (i.e., through the variable declaration section of the program).

Accordingly, there is no motivation within Chen to combine its teachings with those of another reference which discloses programmer specification of a function to be used, and without such a suggestion or motivation, any attempt to combine Chen with such a reference can only be based upon impermissible hindsight reasoning.

Accordingly, Claim 67 is believed to be patentable under 35 USC 102(e) over Chen for the foregoing reasons.

Claims 68, 69 and 72 are also believed to be patentable under 35 USC 102(e) over Chen since they depend from claim 67, and as such, are believed to be patentable for at least the same reasons as stated in reference to claim 67.

Claim 78 claims a method of producing storage media that has been amended in a similar manner as claim 67 so that claim 78 is also believed to be patentable under 35 USC 102(e) over Chen for similar reasons as stated in reference to claim 67.

Claims 79-86 are also believed to be patentable under 35 USC 102(e) over Chen since they depend from claim 78, and as such, are believed to be patentable for at least the same reasons as stated in reference to claim 78.

Claim 87 claims a storage media having a security program that has been obfuscated by a method such as claimed in claim 67 so that claim 87 is also believed to be patentable under 35 USC 102(e) over Chen for similar reasons as stated in reference to claim 67.

Claims 88-96 are also believed to be patentable under 35 USC 102(e) over Chen since they depend from claim 87, and as such, are believed to be patentable for at least the same reasons as stated in reference to claim 87.

3. Rejection of Claim 97 under 35 USC 102(b) in light of Sokolov

Claim 97 has been amended to claim a “method implemented by a first processor for providing a program for secure execution on a second processor, the method comprising:

receiving a key value; using the key value to retrieve information of a template from a library of templates indexed by key values, wherein each of the templates in the library is associated with a different encrypted set of instructions that result from compiling source code of the program and associated with a different emulator program configured to translate corresponding of the different encrypted set of instructions into a set of obfuscated native instructions; compiling the source code to generate an encrypted set of instructions associated with the template, wherein the encrypted set of instructions is not directly executable by the second processor; and providing the encrypted set of instructions along with an emulator program associated with the template to the second processor, wherein the emulator program and the set of obfuscated native instructions are directly executable by the second processor,” and such a method is believed to be neither taught nor suggested by Sokolov.

The library of templates indexed by key values facilitates selection of an encrypted set of instructions and a corresponding emulator program that is configured to translate the encrypted set of instructions into a set of obfuscated native instructions, so that the encrypted set of instructions and emulator program may be provided to a processor for secure execution of the encrypted set of instructions on the processor.

In contrast, the prior art of record doesn't show any use of such a library of templates for secure execution of a program on a processor. In Sokolov, a set of virtual machine instructions is described which provides the same or more functionality than a full set of Java Bytecode executable instructions, thus resulting in simpler and more robust virtual machines that run the instructions (§0015; and §0045). Sokolov, however, fails to teach or even suggest that its virtual machines generate a set of obfuscated native instructions.

Nor does it teach or suggest “using the key value to retrieve information of a template from a library of templates indexed by key values, wherein each of the templates in the library is associated with a different encrypted set of instructions that result from compiling source code of the program and associated with a different emulator program configured to translate corresponding of the different encrypted set of instructions into a set of obfuscated native instructions.”

Accordingly, Claim 97 is believed to be patentable under 35 USC 102(e) over Sokolov for the foregoing reasons.

4. Rejection of Claims 98-100 under 35 USC 103(a) in light of Sokolov and Lambert

Although Lambert describes Java bytecode obfuscation as a non-preferred means of securing the Java bytecode, the method described in Lambert (FIG. 3; ¶0026 and ¶0027), like Sokolov, fails to teach or suggest “using the key value to retrieve information of a template from a library of templates indexed by key values, wherein each of the templates in the library is associated with a different encrypted set of instructions that result from compiling source code of the program and associated with a different emulator program configured to translate corresponding of the different encrypted set of instructions into a set of obfuscated native instructions.”

Accordingly, Claims 98-100 are believed to be patentable under 35 USC 103(a) in light of Sokolov and Lambert since they depend from claim 97, and as such, are believed to be patentable for at the least the same reasons stated in reference to claim 97 with regards to Sokolov, as well as the foregoing reasons with regards to Lambert.

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5. Rejection of Claims 101-105 under 35 USC 103(a) in view of Chen and Sokolov

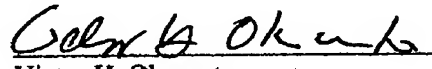
Claims 101-105 have been cancelled and therefore are no longer at issue in the present application.

Conclusion

Claims 67-69, 72 and 78-100 are presently pending in the application. Claims 1-66, 70, 71, 73-77 and 101-105 have been cancelled. Reconsideration of the rejections of the claims is respectfully requested for the reasons stated herein, and an early notice of their allowance earnestly solicited.

Respectfully submitted,

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